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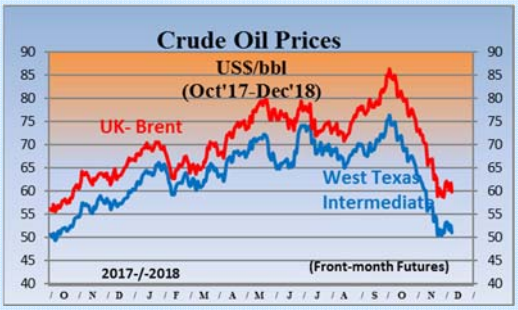
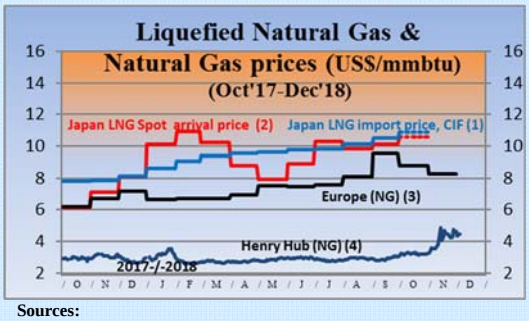


Source: DOE-EIA, Financial Times, NASDAQ



Sources:
(1) Ministry of Finance "Japan Trade Statistics"
(2) Ministry of Economy, Trade and Industry (arrival month basis)
(3) Estimated by World Bank (Netherland Title Transfer Facility)
(4) DOE-EIA, NYMEX (Front-month Futures)
(5) Investing.com

Source: x-rates.com

Source: Financial Times

Contents

Summary

【Energy Market and Policy Trends】

1. Developments in Nuclear Power

The governments of the United Kingdom, Canada, and the United States each released a policy document on the development of small modular reactors (SMRs). The regulatory readiness for SMRs must be closely monitored.

2. Recent Developments in the LNG and Oil Markets

As oil prices continue to fall, whether the leaders will strike some kind of a “deal” at the US-China summit and whether OPEC will scale up the production cut will significantly affect short-term oil prices.

3. Update on Policies Related to Climate Change

There have been various moves regarding the formulation of rulebook for the Paris Agreement, the stocktake of the collective efforts of Parties’ nationally determined contributions up to 2030, and the “just transition” declaration in COP24.

4. Update on Policies Related to Energy Conservation

Efforts are under way in many countries to define and set targets for Zero Energy Buildings (ZEBs), and demonstration projects are being conducted. The most advanced buildings tend to integrate higher energy efficiency performance with water saving, comfort, and health considerations as a package.

5. Update on Renewable Energies

A revision to the FIT system that would accelerate the cancellation of licensed non-operating projects was proposed by a government council. The revision sets very strict requirements but is a necessary step for making renewable energies an financially-independent major power source.

1. Developments in Nuclear Power

Tomoko Murakami, Manager
Nuclear Energy Group, Strategy Research Unit

A series of new initiatives and efforts are under way to develop small module reactors (SMRs) in developed Western countries.

On November 5 and 6, the British government hosted an event in the UK to discuss the commercialization of small nuclear reactors, at which Richard Harrington, Under Secretary of State at the Department for Business, Energy and Industrial Strategy (BEIS), revealed the policy to develop innovative nuclear reactors including SMRs and bring them to other countries as a key strategy to boost the country's competitiveness in the sector. On the following day, the 7th, BEIS updated the section on the development of innovative reactors on its official website and announced the intention to open the Generic Design Assessment process for SMRs and advanced modular reactors that use technologies other than for light-water reactors, while taking into account the opinions from industry presented during the two days. On November 7, Natural Resources Canada released a report titled A Call to Action indicating Canada's SMR development roadmap and announced its intention to play a leading role in the international development and practical application of SMRs.

The almost concurrent announcements by the two governments each highlight their own focus areas and challenges for the future, but it is interesting that they both mention regulatory readiness, in other words, regulatory processes that are appropriate for SMR deployment. BEIS says that they are "reviewing and improving the Generic Design Assessment (GDA) process to take account of lessons learned from previous assessments and introduce greater flexibility into the process. The inherent objectives and advantages of the GDA process remain unchanged" and that they are prepared to provide up to £7 million to the Office for Nuclear Regulation and the Environment Agency for this purpose. Natural Resources Canada states in A Call to Action that existing regulatory and legislative processes are ready for SMR deployment in Canada, but some refinements would be needed in view of the scale and characteristics of SMRs. These actions assume that merely applying the current assessment process would be too unpredictable for operators and thus hamper SMR development, and highlight the two governments' real commitment to this technology.

On November 13, the US Department of Energy released a report on support for SMRs. The report, titled "Examination of Federal Financial Assistance in the Renewable Energy Market," states that federal financial support of $51.2 billion was awarded to solar PV, wind power, and other types of renewable electricity between 2005 and 2015 as tax breaks, costing 1.08 cents/kWh, and estimates that $10 billion of support to SMRs would cut the cost to a third of that of renewables at 0.38 cents/kWh. The report suggests that it is right and rational for the government to support SMRs, but the views of other industries need to be heard.

On November 7, the Nuclear Regulation Authority approved the application for the lifetime extension of Tokai No. 2 Power Station of the Japan Atomic Power Company, becoming the fourth plant to be awarded an extension after Mihama Unit 3 and Takahama Units 1 and 2. Attention must be paid to the progress of the construction of safety measures, which will take several years.

2. Recent Developments in the LNG and Oil Markets

Tetsuo Morikawa, Senior Economist, Manager
Oil Group and Gas Group
Fossil Energies & International Cooperation Unit

Oil prices continue to drop. They fell sharply in October amid a drop in stock prices and concerns about oversupply, followed by a further drop as the United States announced a 180-day waiver for eight countries including Japan, China, and South Korea to stop purchases of Iranian oil on November 5. In response, on the 11th, Saudi Energy, Industry and Mineral Resources Minister Khalid Al-Falih said that OPEC and its allies will need to slash their oil output by 1 mb/d in 2019. However, prices fell again after President Donald Trump criticized OPEC's production cut on Twitter on the 12th. The lower demand outlook by the International Energy Agency for 2018 and 2019 in the monthly Oil Market Report on the 13th also weakened prices. Further, as stock prices fell and concerns about oversupply worsened, Brent fell below $60 to $58.80 on November 23, marking the lowest in 13 months.

As Minister Al-Falih has said, oil producing countries are already taking steps to cut production. The current level of joint production cut (1.8 mb/d) could be expanded at the OPEC meeting on December 6 and the meeting with Russia and other non-OPEC countries on the 7th. US oil output remains robust at 16.27 mb/d as of mid-November, increasing by as much as 2.3 mb/d year-on-year. Though the pace of increase will slow in 2019, an additional 1.2 mb/d increase from 2018 levels is expected. The monthly Oil Market Report predicts average demand for OPEC crude (Call on OPEC) of 31.3 mb/d for 2019. This is a substantial 1.7 mb/d below the OPEC output in October. A significant production cut in will be required to prop up prices.

Concerns about an economic slowdown are mounting, as shown by the downward revision of the IMF's World Economic Outlook in October. In the United States, the effect of tax breaks will fade in 2019. In Europe, risks such as the UK parliament's rejection of the Brexit vote and Italy's fiscal woes are looming. Stock prices continue to decline in China due to the risk of the trade war hitting the economy. Whether some kind of a "deal" will be reached on the trade war at the US-China summit at the end of November and whether OPEC will decide to increase the production cut in early December will significantly impact short-term oil prices.

As for the LNG market, the spot price for North East Asia stands at around $10 to $11/MMBtu. China's LNG imports in January through September 2018 increased by as much as 11.50 million tonnes (45%) year-on-year but the impact on spot prices was not large as term contracts had increased. Meanwhile in the US, Henry Hub has risen to $4.3/MMBtu as of late November due to decreasing inventories and the cold weather. The low oil prices and high Henry Hub price, if continued, will erode the competitiveness of US LNG against oil-indexed LNG. The effect on the anticipated expansion of US LNG must be carefully watched.

3. Update on Policies Related to Climate Change

Takahiko Tagami, Senior Coordinator, Manager
Climate Change Policy Research Group
Global Environment and Sustainable Development Unit

COP24 (Katowice, Poland) has two focuses: the formulation of rulebook for the Paris Agreement and the stocktake of the collective efforts of Parties' nationally determined contributions up to 2030. In addition, Poland as chair aims to release a declaration regarding a "just transition" of workforce and the creation of decent work and quality jobs.

Regarding the rulebook for the Paris Agreement, finance and adaptation will be the focus. On November 6, the Economic and Finance Affairs Council (ECOFIN) of the EU adopted conclusions on climate finance ahead of COP24. The EU and its Member States highlighted that they had contributed EUR 20.4 billion in climate finance for 2017 and reaffirmed that they were committed to scale up the mobilization of international climate finance, as part of the collective developed countries' goal to jointly mobilize USD 100 billion by 2020 through to 2025, but no further details were indicated. They also made a commitment to work towards a replenishment process of the Green Climate Fund. Meanwhile, regarding adaptation, on November 1, Thoriq Ibrahim, the environment and energy minister of the Maldives and chairman of the Alliance of Small Island States, commented to the media that we had entered a new phase in the climate talks, one where we must now devote at least as much energy to securing our priorities on adaptation and loss and damage, which refers to the irreversible harm caused by climate change, as we do on mitigation ambition.

Regarding the contributions up to 2030, India will reportedly submit its Second Biennial Update Report to the UN Framework Convention on Climate Change by December this year. The report includes India's emission data for 2014 and notes India has cut its GHG emission intensity per unit GDP by 21% below 2005 by 2014. At this rate, India could fulfill its Paris Agreement commitment of reducing the intensity by 33-35% ahead of the 2030 deadline. Further, as of March 2018, 35% of India's power generation capacity is non-fossil fuel-based. The country could achieve its commitment of turning 40% of the power capacity to non-fossil fuel sources also well before 2030, by adding 17 to 23 GW of non-fossil capacity. As for the EU, Miguel Arias Cañete, EU Commissioner for Climate Action & Energy, revealed on November 9 while visiting China that the EU would release a long-term strategy to limit global warming to 1.5℃ in November. The long-term strategy was adopted by the European Commission on November 28.

Regarding a "just transition," on October 25, Germany's Commission on Growth, Structural Change and Employment adopted the first recommendation for those lignite mining regions affected by a future coal power phase-out. The commission report makes proposals for measures to create jobs, lays out "future visions" to make mining districts "innovation regions", and proposes to set up the power-to-x projects, which will produce hydrogen from renewable electricity. Further, the Commission reconvened on November 15 and 16 and the draft suggests compensation payments to thermal power plants for retired capacities and a carbon pricing on fuel for transportation and heating to fund the compensation. Views are, however, divided on a carbon pricing even within the Social Democrat Party, with the Federal Environment Minister from that party planning a concept for a carbon pricing while the Ministry of Finance led by a minister from the same party saying that there are no consideration to introduce a CO_2 tax or a new CO_2 price and to increase the burden on citizens.

4. Update on Policies Related to Energy Conservation

Naoko Doi, Senior Economist, Manager
Energy Conservation Group
Global Environment and Sustainable Development Unit

Efforts are under way in many countries to define and set targets for Zero Energy Buildings (ZEBs) which combines energy efficiency and renewable energy technologies to achieve net zero energy consumption. The Japanese government aims to achieve ZEB on average for all new commercial buildings by 2030, while EU aims to make all new buildings "nearly ZEB" by December 31, 2020. The ASEAN announced at its Energy Ministers Meeting on October 30 that it will formulate a green building code for the zone within this year.

The most advanced buildings are called green buildings and sustainable buildings, as well as ZEBs. These buildings integrate technologies and designs that save water resources, harmonize with the surrounding environment, make the building more comfortable for residents and workers, and take people's health into consideration, while improving energy efficiency capabilities and introducing renewable technologies.

On October 10, the Royal Institute of British Architects (RIBA) in the UK announced this year's architectural award. Bloomberg European Headquarters in London, the winner, is evaluated as the world's most sustainable office building. The RIBA Stirling Prize is awarded to the best architectural work in Britain each year and was given to Bloomberg for its superior energy efficiency compared to typical buildings (saving of 35%) as well as various added values including a 70% saving in water use (reusing rainwater and grey water in ultra water-saving toilets) and a design that blends in with the surrounding environment. A notable feature of this structure is its consideration for "wellness (being healthy in body and mind)"; the building is packed with various features designed to subconsciously maintain the "wellness" of people in the building. These include a foyer designed to promote communication, glass-walled meeting rooms, and a gentle spiral slope connecting the floors that encourages people to walk from one level to another rather than use the elevators, in addition to using natural light and ventilation.

As a worldwide effort, structures with embedded "wellness" are obtaining WELL certification. The WELL certification evaluates a structure for its design, use, and additionally, "human health and reassurance in the space" based on 105 items in seven areas (air, water, nourishment, light, fitness, comfort, and mind). Specific evaluation criteria include the use of natural light, air quality improvement by reducing toxic VOC and controlling CO_2 concentration, a layout that encourages the use of stairs, and height-adjustable desktops. 134 structures have obtained the WELL certification as of November 2018, with 962 more undergoing registration for certification. In addition to the WELL certification, some companies have obtained the LEED certification that was started in 2000 and evaluates the "environmental performance of technological aspects" of a structure.

For ZEB to expand, not only to aim at achieving the energy efficiency performance and CO_2 reduction effect of structures, it is essential to place the connection between space and people at the core of design philosophy. Such philosophy could help ZEB expand in the future under the global increasing interests on ESG investment, which evaluates the environmental (E), social (S), and governance (G) initiatives of companies.

5. Update on Renewable Energies

Yoshiaki Shibata, Senior Economist, Manager
New and Renewable Energy Group
New and Renewable Energy & International Cooperation Unit

The Subcommittee on Large-scale Renewable Energy Introduction and the Next-Generation Power Network held on October 15 discussed the issue of non-operating FIT projects and formulated a draft revision to the system. The main problems with non-operating projects are the public burden caused by the high purchase price and that they block low-cost new entrants by taking up connection capacities they do not use. The FIT system has been revised and licenses have been cancelled in stages, but the new draft revision is like an ultimatum intended to solve the problem of long-term non-operating projects as soon as possible.

The root cause of the problem is the time lag between the effective timing of the purchase price and the start of operation. The FIT system has been revised to move the effective timing of the purchase price as close as possible to the probable start of operation and to set a deadline by which operation must be started. The revised FIT Act of FY2017 set the effective timing of the purchase price to after the date of grid connection agreement, after which it is unlikely to intentionally delay the start of operation, in addition to setting a three-year time limit to start operation. Commercial solar PV projects that already had a grid connection agreement were exempted from the three-year time limit assuming that they would start operating soon; however, it was later discovered that many of them were actually not operating. Further, as much as 10 GW of them were licensed between FY2012 and 2014 when the purchase price was between 40 yen/kWh to 32 yen/kWh.

The draft revision proposes requiring these projects to submit an application to commence grid connection work after concluding the connection agreement, and for it to be accepted without problems within FY2018 to be eligible for their initially approved purchase prices; if the application is made in FY2019 or later, the FY2017 purchase price of 21 yen/kWh will be applied to the project. The revision further proposes setting a one-year time limit from receiving the grid connection work application to starting operation. Concurrently, the Procurement Price Calculation Committee held on November 8 made a proposal to shorten the purchase period for the same number of months that the time limit is exceeded.

These are very strict conditions under which a project will have its initially anticipated purchase price slashed by half unless it can prove, in a very short time before the end of March 2019, that it will start operation, and even if it does, the project will have only one year to start operation, otherwise the effective purchase period will be shortened. The proposed revision will continue to be discussed in the Subcommittee following a public comment period that began on October 22.

Some argue that there are two types of non-operating projects: bad projects that are intentionally delaying the start of operation, and good projects that need time for discussion and adjustment with the community and its residents, and that the good ones deserve special handling. However, the issue of non-operating projects has been discussed numerous times in councils and renewable operators have had ample time to act. Further, equipment costs have decreased significantly since the start of the FIT program, and it seems appropriate to apply a purchase price commensurate with the cost to good projects as well. The proposed revision is also necessary in terms of making renewables an economically-independent power source.

Past IEEJ Events

Energy and Economy Indicators of Japan

IEEJ Homepage Top

Back Numbers of *IEEJ e-Newsletter*

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IEEJ e-Newsletter Editor: Yukari Yamashita, Director
IEEJ Newsletter Editor: Ken Koyama, Managing Director
Inui Bldg. Kachidoki, 13-1 Kachidoki 1-chome, Chuo-ku, Tokyo 104-0054
Tel: +81-3-5547-0211 Fax: +81-3-5547-0223